To: INCITS Technical Committee T10
From: Fred Knight, Network Appliance
Email: knight@netapp.com
Date: ~~April 4~~May 9, 2007
Subject: SPC4 – ALUA/TPGS group membership clarification

1. *Revision history*
Revision 0 (4 April 2007) First revision
Revision 1 (9 May 2007) Add per logical unit group statement

2. *Related documents*
00-232R7 Asymmetric SCSI behavior (17 April 2001)
06-390R2 SPC-4 Target Port Group Disconnect State (16 January 2007)

3. *Overview*
At the January T10 Plenary 06-390R2 was approved for inclusion into SPC-4.
Among other things, that proposal incorporated into section 5.8.2.1 of SPC-4r9
the following statement:

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"One target port is a member of at most one primary target port group."
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A nearly identical statement was contained in the original Asymmetric SCSI
behavior proposal (document 00-232R7) in the following form:

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"Every target port shall be listed in one and only target port group."
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That statement was rejected, and removed in revision 8 and all subsequent
revisions. Implementations have been built where target ports exist in more than
one target port group.

The intention of 06-390R2 was only to add the Secondary Target Port Group
concept and the Secondary Target Port OFFLINE state. It was not the intention
of that proposal to invalidate any previous designs, or to make illegal any designs
that may have previously been legal.

Therefore the sentence should be ~~removed~~amended to specify that it applies per
logical unit group.

4. *Suggested changes*

5.8.2.1 Introduction to asymmetric logical unit access

Asymmetric logical unit access occurs when the access characteristics of one port may differ from those of another port. SCSI target devices with target ports implemented in separate physical units may need to designate differing levels of access for the target ports associated with each logical unit. While commands and task management functions (see SAM-4) may be routed to a logical unit through any target port, the performance may not be optimal, and the allowable command set may be less complete than when the same commands and task management functions are routed through a different target port. In addition, some target ports may be in a state (e.g., offline) that is unique to that target port. When a failure on the path to one target port is detected, the SCSI target device may perform automatic internal reconfiguration to make a logical unit accessible from a different set of target ports or may be instructed by the application client to make a logical unit accessible from a different set of target ports.

A target port characteristic called primary target port asymmetric access state (see 5.8.2.4) defines properties of a target port and the allowable command set for a logical unit when commands and task management functions are routed through the target port maintaining that state.

A primary target port group is defined as a set of target ports that are in the same primary target port asymmetric access state at all times (i.e., a change in one target port's primary target port asymmetric access state implies an equivalent change in the primary target port asymmetric access state of all target ports in the same primary target port group). A primary target port group asymmetric access state is defined as the primary target port asymmetric access state common to the set of target ports in a primary target port group. One target port is a member of at most one primary target port group for a logical unit group (see 7.6.3.9 – Logical Unit group designator format). The grouping of target ports in a primary target port group is vendor specific.

A logical unit may have commands and task management functions routed through multiple primary target port groups. Logical units support asymmetric logical unit access if different primary target port groups may be in different primary target port group asymmetric access states.